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IN THE

SUPREME COURT OF THE UNITED STATES

October Term, 1940

NO. 57

RAILROAD COMMISSION OF TEXAS, ET AL.,
Appellants

v.

HUMBLE OIL & REFINING COMPANY,
Appellee

BRIEF FOR APPELLANTS

On Appeal from the United States District Court
for the Western District of Texas

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OPINION BELOW

The opinion of the United States District Court for the Western District of Texas is not reported. An informal oral opinion was rendered on February 21, 1940, (R. 564) and findings of fact and conclusions of law were entered on March 20, 1940. (R. 573)

STATEMENT OF GROUNDS FOR JURISDICTION

The jurisdiction of the Supreme Court of the United States is invoked under Sections 238 and 266 of the Judicial Code, as amended by the act of February 13, 1925. (U. S. Code, Title 28, Sections 345 and 380.) The judgment here appealed from was dated March 19, 1940, and was filed on March 20, 1940. (R. 570) The appeal was allowed in this case by an order of the District Court entered on April 1, 1940. (R. 602) The record was filed in this court on April 19, 1940, and the order noting probable jurisdiction was entered on June 3, 1940.

STATEMENT OF THE CASE

1. Proceedings in the District Court

This suit was brought by the appellee, Humble Oil & Refining Company, a Texas corporation, (hereinafter referred to as Humble) against the appellants, the Railroad Commission of Texas and its members, and the Attorney General of Texas, seeking temporary and permanent injunctive relief against the enforcement of the proration orders of the Railroad Commission of Texas relating to the East Texas field, on the ground that the orders, as enforced and applied against the property of the appellee, deprived it of its property without due process of law in violation of the Fourteenth Amendment to the Constitution of the United States. All parties are citizens of the State of Texas, and the

jurisdiction of the District Court rested solely on the appellee's claim of the invalidity of the orders of the Railroad Commission under the United States Constitution. (R. 2)

In its complaint filed in the District Court on July 26, 1939, (R. 1) appellee attacked the validity under the Texas statutes and the United States Constitution of the proration order of the Railroad Commission of Texas, dated June 19, 1939. This order is in substance the same as the proration order heretofore considered by this court in the case of *Railroad Commission of Texas* v. *Rowan & Nichols Oil Company*, No. 681, October Term, 1939, decided June 3, 1940. (60 S. Ct. 1021, 84 L. Ed. 983) The pertinent portions of this order read as follows: (R. 9)

> "Rule 23. (2) Therefore, It is Further Ordered by the Railroad Commission of Texas that during each twenty-four (24) hour period beginning at 7 o'clock a.m., Central Standard Time, July 1, 1939, the owner or operator or manager of each well in the East Texas Field shall be permitted, either collectively or individually, to produce daily from each well a maximum of Two and Thirty-two Hundredths Per Cent (2.32%) of its hourly potential capacity as determined by the Commission. Provided, however, that the above order shall not be enforced as to the property of Rowan & Nichols Oil Company, involved in Cause No. 624 in Equity in the United States District Court for the Western District of Texas, Austin Division, in so far as the enforcement of this order is prohibited by the injunction issued by said Court

on June 14, 1939, and so long as said injunction is in force and effect."

The contention of the appellee in its complaint was that the proration order attacked was principally a per well order, since the Railroad Commission did not apply the formula set forth in the order of June 19, 1939, to any well where the application of said formula would reduce the daily allowable of such well below 20 barrels a day, and permitted every well, which was capable of producing that amount, to produce at least 20 barrels per day. (R. 10) Appellee alleged that it was the owner of not less than 14% of the oil in the field, and that it should currently be allowed to produce daily an amount of oil substantially equal to 14% of the total daily field allowable, but that the Railroad Commission, under the order of June 19, 1939, permitted the appellee to produce currently only approximately 9.932% of the daily field allowable, and thereby deprived the plaintiff of an amount of oil equal to about 4% of the total daily field allowable. (R. 11)

A three-judge district court was convened on August 10, 1939, to hear the plaintiff's application for a temporary injunction. The defendants filed a motion for a more definite statement and for a bill of particulars, and raised the defense that the action was premature, in that the plaintiff had not exhausted its administrative remedy since it had applied to the Railroad Commission for an increase in its allowable, and the Railroad Commission then had pending before it and set for hearing on August 16,

1939, the plaintiff's application for an increase in its allowable. The defendants also filed their answer, alleging that the proration order complained of was reasonable and fair, and that the plaintiff would receive its fair share of the oil during the life of its leases.

The three-judge district court overruled the defendants' motions, and on August 11, 1939, entered a preliminary injunction, enjoining the Railroad Commission and the Attorney General of Texas from enforcing the proration order of June 19, 1939, and the schedules issued in connection therewith, and further enjoined the defendants from interfering with the plaintiff in daily producing from its wells "an amount of oil not exceeding 144% of the amount now allowed to each and all of complainant's said wells under said proration order of June 19, 1939, and the schedule issued in connection therewith for said field." (R. 38, 40)

No appeal was taken from the temporary injunction entered by the court on August 11, 1939. On August 16, 1939, the Railroad Commission of Texas proceeded with its previously scheduled hearing on the application of Humble Oil & Refining Company for an increase in the allowables for the wells on its leases and heard evidence generally with reference to the advisability of changing the proration order for the East Texas oil field. On September 11, 1939, after the completion of the hearing on said application, the Railroad Commission of Texas entered its order, dated September 11, 1939, containing the fol-

lowing provisions as to the proration of the allowable production from the East Texas field: (R. 43, Plaintiff's Exhibit No. 8, offered R. 138, copied R. 473)

"Rule 23. (A) Not more than 690,000 barrels of crude oil shall be produced from the East Texas Field during any day of the effective period of this order.

"(B) The total daily allowable for the field shall be distributed among the producing wells in the field on the following basis:

"1. Each well capable of producing twenty (20) barrels of crude oil per day shall be allowed to produce twenty (20) barrels per day.

"2. Each well incapable of producing twenty (20) barrels per day shall be allowed to produce daily that amount of oil which it is capable of producing in a 24-hour period, not in excess of twenty (20) barrels.

"3. In addition to the twenty (20) barrels provided for in one (1) above, each well in the field which is capable of producing in excess of twenty (20) barrels daily shall be allowed to produce daily that proportion of the total daily allowable for the field remaining after deductions for one (1) and two (2) above have been made, that the product of such well's hourly potential by its bottom-hole pressure by the thickness of the saturated Woodbine sand underlying the well by the average number of acres per well in the lease bears to the sum of such products for all of the wells in the field."

On September 29, 1939, the Railroad Commission of Texas entered a new order fixing the allowable production in the various fields in Texas, and readopted and amended the order of September 11, 1939, with reference to the East Texas oil field. (R. 44, Plaintiff's Exhibit No. 8-A, offered R. 138, copied R. 476)

On October 3, 1939, the appellee filed a supplemental complaint (R. 41) whereby it asserted the invalidity of the proration orders of September 11, 1939, and September 29, 1939, as being in violation of the Texas statutes and the equal protection and due process clauses of the Fourteenth Amendment to the Constitution of the United States, and seeking temporary and final injunctive relief to restrain the Railroad Commission of Texas and the Attorney General of Texas from the enforcement and execution of said orders. The appellee further asserted in said supplemental complaint that the orders of September 11, 1939, and September 29, 1939, were in violation of the preliminary injunction issued by the court on August 11; 1939. (R. 47) In its supplemental complaint, the appellee asserted that it owned approximately 14.3% of the recoverable oil in the East Texas field, and that it should be allowed currently to produce substantially 14.3% of the daily total field allowable, but that under the orders attacked, the appellee was currently permitted to produce only about 11.15% of the total daily field allowable, and that it was thereby deprived of the opportunity to produce approximately 3.15% of the daily

allowable production for the East Texas field. (R. 45)

A three-judge district court was convened on October 12, 1939, to hear Humble's application for a second interlocutory injunction. The defendants filed an answer to the supplemental complaint, alleging that the orders of the Railroad Commission were valid and reasonable, and that the plaintiff under said proration orders would recover substantially the equivalent of the oil beneath its leases. (R. 53) Evidence was submitted and the court took the case under advisement and on November 10, 1939, the court entered its decree denying to the plaintiff a second interlocutory injunction (R. 69), principally upon the ground that the Railroad Commission's order of September 29, 1939, gave the appellee a greater allowable than was required by the interlocutory injunction dated August 11, 1939. (R. 68)

No appeal was taken from the decree of November 10, 1939, denying a second interlocutory injunction.

The action came on for hearing on the prayer for a permanent injunction at Austin, Texas, on February 13, 1940. In the meantime, the Railroad Commission of Texas had issued monthly proration orders for the East Texas oil field, continuing substantially the same method of proration as that established by the orders of September 11, 1939, and September 29, 1939. It was stipulated by the parties at the trial that it would be unnecessary for the

plaintiff to amend its pleadings or to file supplemental pleadings showing the promulgation of such orders continuing substantially the same method of proration, and that any judgment entered by the court should apply to any orders continuing substantially the same method of proration as that established by the orders of September 11, 1939, and September 29, 1939. (R. 471)

This action was tried jointly, under the provisions of Rule 42 (a) of the Rules of Civil Procedure, with Civil Action No. 46, entitled *Rowan & Nichols Oil Company, Plaintiff* v. *Railroad Commission of Texas, et al., Defendants*, which is now on appeal in this court as No. 218, October Term, 1940, *Railroad Commission of Texas, et al., Appellants* v. *Rowan & Nichols Oil Company, Appellee.* It was agreed at the trial that evidence introduced by any party might be used for or against any other party. (R. 70, 72, 291)

The hearing of evidence was completed on February 16, 1940, and the court took the case under advisement until February 21, 1940, when it announced that it would enter judgments in favor of Humble and Rowan and Nichols Oil Company, permanently enjoining the said defendants in the enforcement and execution of the proration orders attacked. (R. 564) The court then stated, however, that it would withhold entering its decree for a period of 10 days, during which time the Railroad Commission could consider whether it would submit to

said judgment or would appeal.

On March 1, 1940, the Railroad Commission communicated to the court its intention to appeal the case. At the same time, the Railroad Commission filed a motion for a stay pending appeal, alleging that unless a stay was granted, serious and irreparable damage would be done to the whole East Texas oil field and to the oil industry in the State of Texas as a whole, and that the defendants would in effect be deprived of their right of appeal. The three-judge district court was reconvened at Houston, Texas, on March 14, 1940. The defendants presented to the court their motion for a stay of the judgment pending appeal and the court announced that a stay would be granted for a period of 60 days from the date of the judgment. Thereafter, a final judgment dated March 19, 1940, and filed March 20, 1940, was entered by the court, permanently enjoining the defendants from enforcing or executing the orders of the Railroad Commission attacked. (R. 570) This appeal is from said judgment.

2. Issues Presented

The issues involved in this appeal are basically the same as the issues involved in the case of *Railroad Commission of Texas* v. *Rowan & Nichols Oil Company*, 60 S. Ct. 1021, 84 L. Ed. 983.

The Humble in its complaint conceded the validity of the conservation statutes of Texas, the validity of

the spacing rule, known as Rule 37, and the right of the Railroad Commission to fix the total daily field allowable at the figure set. (R. 22)

No attack was made upon the procedure of the Railroad Commission in promulgating the orders attacked. While the evidence shows that the Railroad Commission held extensive hearings (R. 335, 337, 338, 461), the plaintiffs did not seek to introduce the record before the Railroad Commission, but only portions of such record were introduced. (R. 337, 461, 468-470) No claim was made that the Commission acted without notice or hearing or that it did not act upon sufficient evidence heard by it.

During the trial it was also conceded that the factors entering into the proration formula (other than the 20-barrel base allowable) were proper (R. 583) and that the allowance to the "statutory marginal" wells (which were incapable of producing in excess of 20 barrels per day) was so negligible as to have no practical effect on the result of the case. (R. 196, 225, 245, 582, 589)

No complaint is made in this case of any failure of the Railroad Commission to grant to the Humble permits to drill additional wells. (R. 460) At the hearing before the Railroad Commission on August 16, 1939, the appellee's attorney stated several times that Humble did not wish to receive permits for additional wells (R. 461, 462, 469, 470) and that as far as it was concerned the hearing on the question as to

whether permits to drill additional wells should be granted could be postponed "forever." (R. 461)

The "snag in the stream", in the language of the presiding judge (R. 269) was the allowance by the Railroad Commission of a 20-barrel base allowable to all wells capable of producing that amount daily, which resulted in the proration of the total field allowable about 75% on a per well basis and about 25% on the factors of sand thickness, potential, acreage and pressure. (R. 566, 583).

The court will recall that this is fundamentally the same objection as the one raised in the case of *Railroad Commission of Texas* v. *Rowan & Nichols Oil Company*, 60 S. Ct. 1021, 84 L. Ed. 983, the distribution in the *Rowan & Nichols* case being about 98% on the per well factor and about 2% on the well-potential factor.

3. Application of Proration Orders to the Field

The application of the proration orders of the Railroad Commission resulted in the following distribution of the total daily field allowable of about 691,000 barrels: (R. 581)

1. Wells incapable of making 20 barrels per day were allowed to produce to capacity. There were 514 such wells, which produced 6,245 barrels per day.

2. All wells capable of producing 20 barrels per day were granted a base or minimum allowable of 20 barrels. There were 25,456 such wells, the total base or minimum allowable for such wells being about 509,000 barrels per day. Thus about 75% of the field allowable was distributed on a per well basis.

3. Each well capable of producing more than 20 barrels per day was given an additional allowance. The total to be so distributed was arrived at by subtracting from the total field allowable (691,000 barrels) the sum of the production of the "statutory marginal" wells (6,245 barrels) plus the base or minimum allowable for all other wells (about 509,000 barrels), leaving a balance of proratable oil of about 176,000 barrels daily. The amount above 20 barrels per day which each well was allowed to produce was determined by multiplying 176,000 barrels by a fraction whose numerator was the product of the well's hourly potential by its bottomhole pressure by the thickness of the oil sand underlying the well by the average number of acres per well in the lease and whose denominator was the sum of such products for all of the wells in the field. (R. 582) Thus, about 25% of the field allowable was distributed on the factors of well potential, sand thickness, pressure and acreage.

Under the method of proration attacked, no well received exactly 20 barrels allowable, but each well capable of producing more than 20 barrels per day

received an additional allowable, depending on the factors stated above, the best wells receiving over 50 barrels per day and wells on leases densely drilled or having thin sands receiving only a fraction of a barrel above the base allowable of 20 barrels. (R. 198, 350) In this respect the order of September 11, 1939, contrasted with the orders in effect prior to that time, because under such prior orders, some 19,000 wells received an allowable of exactly 20 barrels per day, no more and no less, and the best wells received only about 26 barrels per day. (R. 580)

Under the proration plan attacked, shut-down days were enforced against all wells in the field, except the "statutory marginal" wells. (R. 582) The result of such shut-down days was that the average daily production of the field and of each non-marginal well was reduced. The average total daily field allowable was reduced to about 400,000 barrels per day, (R. 345) and the average minimum or base allowable was only 11.7 barrels over a 30-day period. (R. 363, 375, 403)

4. Application of Proration Orders to Humble's Property

The Humble Oil & Refining Company owns leases on about 14,691 acres in the East Texas field, comprising about 11.04% of the producing acreage. (R. 2) On its leases it has drilled about 2,547 wells. (R. 82) Its leases are in general located in or near the central portion of the field or "fairway." (R. 3,

577) Under the order of June 19, 1939, it received a total daily allowable of about 52,000 barrels per day, or about 9.932% of the daily field allowable. (R. 582) Under the order of September 11, 1939, and subsequent orders, it received a daily allowable of about 77,000 barrels, or about 11.17% of the total daily field allowable. (R. 583)

5. General Description of East Texas Field

The general description of the East Texas field is a matter about which there was very little difference of exper opinion, and such facts are, of course, the same as the facts proved in the case of *Railroad Commission of Texas, et al.* v. *Rowan & Nichols Oil Co.*, 60 S. Ct. 1021, 84 L. Ed. 983. Briefly summarized, these facts are as follows: (R. 574)

The East Texas field is a vast body of oil located in the pore spaces in the eastern extremity of the Woodbine sand formation. The field is about 40 miles in length from north to south, has an average width from east to west of about four miles, and has a surface acreage of about 133,000 acres. A cross section through the field from west to east shows the field to be roughly triangular in shape. The top or long side of the triangle, running upward from west to east, is formed by the Austin chalk formation, which is impermeable and confines the oil in the reservoir at the top. The bottom of the triangle, running approximately horizontally from the western

edge of the field to about the middle of the field, is formed by the line of contact of the water in the Woodbine sand with the oil. The third side of the triangle is the Georgetown limestone formation, which begins at the water-oil contact line at about the middle of the field, and extends upward in an easterly direction to the point where it meets the Austin chalk.

The fact that the oil reservoir is triangular in cross section means that in general the amount of oil-saturated sand under any particular lease depends on its location in the field. The thinner sections of the field are in the western and eastern edges. From each edge, going toward the center of the field, the oil sand gradually becomes thicker and reaches its maximum thickness of about 100 feet at about the center of the field.

There are other factors which determine the amount of recoverable oil beneath any lease other than the amount of sand, and for this reason the amount of recoverable oil beneath any lease is not necessarily in proportion to the average thickness of the oil saturated sand. The sand varies with respect to certain physical characteristics which affect the amount and the recoverability of the oil, such as the porosity and permeability of the sand, the size and location of impermeable streaks of volcanic ash and shale, and the amount of connate water. The percentage of oil recovered will also depend on the bottomhole pressure, which in turn depends on the loca-

tion of the lease on the structure. The high pressure is on the west side, next to the water-oil contact line, and, since the pressure is not completely transmitted across the field, a pressure gradient is set up and the lowest pressures are on the east side of the field.

Almost all of the pressure in the East Texas field is furnished by the water drive, or the pressure of the water on the oil. The pressure arises from the fact that the surface outcrops of the Woodbine sand are about 3,600 feet higher than the oil reservoir in the East Texas field, and the entire Woodbine sand (except where it contains oil or gas) is saturated with water. As the oil is withdrawn from the reservoir, the water on the western edge pushes in to take its place. As the water advances, it pushes oil ahead of it. The lowest portions of the field, being on the western side of the field, naturally will be drowned out by water first, and the higher portions of the field in the center of the field will be drowned out last. In the center and on the eastern side, where water has not yet encroached, when oil is withdrawn other oil is pushed in to take its place, provided the sand is sufficiently permeable to permit the passage of the oil. In a large section in the center and in the eastern half of the field, including 6,921 acres of the leases of Humble Oil & Refining Company (R. 95), there is still as much oil in place beneath the surface as there was when the field was discovered, although oil has been produced from such leases for about 10 years. The eastward migration of the oil, resulting in the long productive life of leases where the sands

are thickest is, therefore, an important physical factor which affects the amount of oil which will be produced from any property in the East Texas field under any method of proration.

While abandonments on the west side are taking place because of the drowning of the wells by the encroachment of water, abandonments are also taking place on the east side because of the drop in pressure, due to the fact that pressure is not transmitted across the entire field. The history of the field shows that about two-thirds of the abandonments are taking place on the west side, and about one-third of the abandonments on the east side. (R. 391) The result is that the portion of the field, known generally as the fairway, where most of the leases of Humble Oil & Refining Company are located, will produce longer than any other portion of the field.

SPECIFICATION OF ERRORS TO BE URGED

The three-judge District Court erred:

1

In holding that the proration orders of the Railroad Commission of Texas of September 11, 1939, September 29, 1939, and January 24, 1940, and the schedules issued in connection therewith for the East Texas field, as interpreted, applied and enforced against the plaintiff, are unreasonable, discriminatory, confiscatory and void as to plaintiff.

2

In holding that the orders of the Railroad Commission of September 11, 1939, September 29, 1939, and January 24, 1940, and the schedule issued in connection therewith for the East Texas field, as interpreted, applied and enforced against plaintiff, do not allocate the production in the field on a reasonable basis, as required by the statutes of the State of Texas.

3

In holding that the orders of the Railroad Commission of September 11, 1939, September 29, 1939, and January 24, 1940, and the schedules issued in connection therewith for the East Texas field, as interpreted, applied and enforced against the plaintiff, operate to confiscate plaintiff's property and unreasonably discriminate against plaintiff, contrary to the due process and equal protection clauses of the Fourteenth Amendment to the Constitution of the United States.

4

In holding that the order of the Railroad Commission of June 19, 1939, for the East Texas field, and the schedules issued in connection therewith, as interpreted, applied and enforced against the plaintiff, were unreasonable and void as to plaintiff and did not allocate the production in the field on a rea-

sonable basis as required by the Texas statutes.

5

In holding that the order of the Railroad Commission of June 19, 1939, for the East Texas field, and the schedules issued in connection therewith, as interpreted, applied and enforced against the plaintiff, deprived the plaintiff of its property without due process of law and denied to it the equal protection of the laws contrary to the Fourteenth Amendment to the Constitution of the United States.

6

In holding that the plaintiff is legally entitled to recover currently an amount of oil which is in the same proportion to the total allowable for the East Texas field as the estimated recoverable oil underneath the plaintiff's lease is to the estimated recoverable oil under the East Texas field as a whole.

7

In holding that the plaintiff is currently suffering immediate and irreparable injury from the enforcement of the orders of the Railroad Commission of September 11, 1939, September 29, 1939, and January 24, 1940.

8

In holding that the plaintiff is without an adequate

remedy at law to protect itself against alleged losses to the plaintiff under the program of regulation attacked in this action.

9

In holding that the right to apply to the Commission for permission to drill additional wells as exceptions to the spacing rules of the Railroad Commission does not constitute an adequate remedy whereby the plaintiff can protect himself against loss and increase its share in the allowable production from the East Texas field.

10

In holding that the plaintiff is entitled to injunctive relief from the court, although plaintiff wholly failed to allege or prove that it had applied to the Railroad Commission for permits to drill additional wells upon its leases, or that the Railroad Commission had refused to grant it such permits.

11

In holding that plaintiff has exhausted its administrative remedy before seeking injunctive relief from this court.

12

In permanently enjoining the defendants from enforcing or attempting to enforce the proration orders and schedules complained of against the plaintiff and its properties in the East Texas field.

13

In permanently enjoining the defendants from enforcing or attempting to enforce the proration orders promulgated by the Railroad Commission of Texas on September 11, 1939, September 29, 1939, and January 24, 1940, and the schedules issued in connection therewith for the East Texas oil field, and any other orders having substantially the same effect.

14

In finding, without sufficient evidence to support said finding, that the plaintiff has been permitted in the past to recover only 11/15th as much oil per acre foot of its oil sand depleted as the field as a whole has been permitted to produce per acre foot of sand depleted.

15

In finding, without sufficient evidence to support said finding, that the plaintiff is currently deprived of an opportunity to produce 3.13% of the field scheduled allowable or about 3.19% of the field's actual allowable.

16

In finding, without sufficient evidence to support said finding, that there is no good reason why a minimum per well allowable of 20 barrels per day is necessary in prorating the allowable production of the East Texas field.

17

In finding, without sufficient evidence to support said finding, that a reasonable method of distribution of the allowable production in the East Texas field can be made without using any per well minimum allowable.

18

In finding, without sufficient evidence to support said finding, that the properties in the "fairway" of the East Texas field, except those which are very densely drilled, are being and will be severely drained by the leases lying in the eastern part of the field.

19

In finding, without sufficient evidence to support said finding, that the proration orders attacked by the plaintiff do not afford to properties in the "fairway" of the East Texas field an opportunity currently to recover their fair share of the oil.

20

In finding, without sufficient evidence to support said finding, that under the proration orders attacked by the plaintiff the properties in the "fairway" in the East Texas field will probably not ultimately be allowed an opportunity to recover substantially the equivalent of the recoverable reserves under them.

21

In finding, without sufficient evidence to support said finding, that it is not necessary to restrict "fairway" properties and wells in order to protect the west side and east side properties from drainage.

22

In finding, without sufficient evidence to support said finding, that most pumping wells in the East Texas field can be operated at a profit on a daily production of as little as five barrels each.

23

In finding, without sufficient evidence to support such finding, that if pumping wells, producing water, should be closed in by a restriction of their daily allowable, practically all of the recoverable oil in the tract on which such wells are located would be produced by other wells and no substantial waste would result from the abandonment of such wells.

24

In finding, without sufficient evidence to support such finding, that practically all wells in the field have been drilled more than two years and have produced more than a sufficient amount of oil to pay for the cost of drilling, equipping and operating such wells.

25

In finding, without sufficient evidence to support

such finding, that the loss to the plaintiff under the present method of proration amounts to "a very large figure daily."

26

In finding, without sufficient evidence to support said finding, that the loss to the plaintiff under the present method of proration will probably amount to "an enormous figure" over a period of years if the program be continued.

27

In finding, without sufficient evidence to support said finding, that, under the operation of the present program of proration in the East Texas field, the plaintiff's share in the allowable will not increase in the future as properties on the west side of the field are depleted.

28

In finding, without sufficient evidence to support said finding, that the orders of the Railroad Commission attacked by the plaintiff result "in a daily loss of many thousand barrels of oil worth many thousand dollars" to plaintiff.

29

In finding, without sufficient evidence to support such finding, that a well drilled in the East Texas field will effectively drain an area of at least ten acres.

30

In the rendition of the final judgment in this action filed and entered March 19, 1940.

SUMMARY OF ARGUMENT

1. There being no diversity of citizenship in this case, the only question open to the District Court is the alleged conflict of the orders of the Railroad Commission with the Fourteenth Amendment. The District Court therefore erroneously held that the orders failed to prorate the allowable production "on a reasonable basis", as required by the Texas statutes. In holding the administrative orders invalid under the Fourteenth Amendment, the District Court erroneously substituted its judgment of reasonableness and fairness for the judgment of the Railroad Commission.

2. This case is controlled by the decision of this court in the case of *Railroad Commission of Texas* v. *Rowan & Nichols Oil Company*, 60 S. Ct. 1021, 84 L. Ed. 983. The Railroad Commission orders in this case are attacked on the same basis as in the *Rowan & Nichols* case. The essential ground of complaint in both cases is the allowance of a 20-barrel base or marginal allowable to all wells which are capable of making that amount. In the *Rowan & Nichols* case this resulted in the distribution of about 98% of the total field allowable on a per well basis. This court overruled the contentions of the oil company in that

case that such a method of distribution was arbitrary and confiscatory. If the Railroad Commission's orders were properly sustained where they resulted in a dsitribution of the allowable 98% on a per well basis, then *a fortiori* they must be sustained where the distribution is only 75% on a per well basis, and 25% on the basis of factors which admittedly are properly considered.

3. The Humble has no standing to complain of the method of proration involved in this case because it is recovering at the present time and it will recover in the future its fair share of the oil in the East Texas reservoir.

4. The 20-barrel base or minimum allowable is reasonably necessary to permit a fair recovery of oil by wells located in the western and eastern portions of the East Texas field and on small tracts, and to prevent the physical waste of oil which will be recovered only through such wells.

5. The method of proration advocated by the Humble and embraced by the District Court (that the allowable should be prorated on the basis of current oil reserves) would result in the confiscation of the property of many operators in the East Texas field because (a) it would make it impossible for operators in the western and eastern portions of the field to obtain the equivalent of the oil originally in place beneath their land, and (b) it would make it impossible for the owners of a small tract of land

to drill and operate wells on their land. While taking the oil from such operators, it would allow operators whose leases lie mainly in the fairway, such as Humble, to recover much more than the equivalent of the oil originally in place beneath their leases.

ARGUMENT

I

There being no diversity of citizenship, the only question open to the District Court was the asserted conflict of the Railroad Commission's orders with the Fourteenth Amendment to the United States Constitution, and in considering such question, the District Court had no right to substitute its judgment for that of the Railroad Commission, even if there were convincing proof that a different result would have been better.

In the present case, there is no diversity of citizenship, the Humble being a Texas corporation and all defendants being citizens of Texas. Such being the case, all other questions, including the validity of the orders under the Texas statutes[1], are not open

[1]The Humble attacked the orders on the ground that they violated the Texas statutes. (R. 7, 10) The District Court in its oral opinion (R. 566, 567), its judgment (R. 571) and in its conclusions of law (R. 588) found the orders to be invalid because they do not "allocate the production in the field on a reasonable basis as required by the Texas Statutes" (R. 588), as well as being in violation of the Fourteenth Amendment to the United States Constitution.

for decision by the federal courts. In this connection, this court said in the case of *Railroad Commission of Texas* v. *Rowan & Nichols Oil Company*, 60 S. Ct. 1021, 1024, 84 L. Ed. 983, 985:

> "... Certainly so far as the federal courts are concerned the evolution of these formulas belongs to the Commission and not to the judiciary. *Except where the jurisdiction rests, as it does not here, on diversity of citizenship, the only question open to a federal tribunal is whether the state action complained of has transgressed whatever restrictions the vague contours of the Due Process Clause may place upon the exercise of the state's regulatory power.*" (Our emphasis)

The District Court therefore erred in striking down the Railroad Commission orders on the ground that they failed to allocate the allowable production "on a reasonable basis," as required by Section 7 of Article 6049c, Revised Civil Statutes of Texas.[2]

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[2]Even if it were held that the federal courts might properly determine the validity of the Railroad Commission's orders under the Texas statutes, the test of their validity would not be substantially different from the test applied to determine whether they violate the Fourteenth Amendment. The two questions were treated as substantially the same by the District Court in this case. (R. 566) Under the decisions of the Supreme Court of Texas, the courts have no authority to substitute their ideas of reasonableness for those of the Railroad Commission, and where the Railroad Commission has followed established procedure, its orders will not be set aside if reasonably supported by substantial evidence. In *Gulf Land Co.* v. *Atlantic Refining Co.*, 134 Tex. 59, 74, the Supreme Court of Texas said:

> "... Stated in another way, the court does not act as an administrative body to determine whether or not it would have reached the same fact conclusion that the Commission reached, but will consider only whether the action of the Commission in its determination of the facts is reasonably supported by substantial evidence."

In considering the validity of the orders under the Fourteenth Amendment, the District Court was not entitled to substitute its ideas of fairness for those of the Railroad Commission, even if there were convincing proof that a different result would have been better. In this connection, this court said in *Railroad Commission of Texas* v. *Rowan & Nichols Oil Co.*, 60 S. Ct. 1021, 1024, 1025, 1026, 84 L. Ed. 983, 985, 986, 987:

> ". . . A controversy like this always calls for fresh reminder that courts must not substitute their notions of expediency and fairness for those which have guided the agencies to whom the formulation and execution of policy have been entrusted."
>
> "Plainly these are not issues for our arbitrament."
>
> ". . . In striking the balances that have to be struck with the complicated and subtle factors that must enter into such judgments, the Commission has observed established procedure. If the history of proration is any guide, the present order is but one more item in a continuous series of adjustments. It is not for the federal courts to supplant the Commission's judgment even in the fact of convincing proof that a different result would have been better."

In the following portions of our brief we shall attempt to show, by a summary of the evidence, that the District Court substituted its judgment of fairness and reasonableness for that of the Railroad Commission, even in the face of convincing proof

that the Railroad Commission's plan of proration is reasonable and that it achieves a fair and equitable distribution.

In this connection, we direct the court's attention to the fact that, while there was no attack on the Railroad Commission's procedure and while the evidence (R. 335, 337, 338, 461), including the orders themselves[3], shows that regular hearings were held by the Railroad Commission, the records of these hearings were not introduced, except for portions of certain hearings. (R. 337, 461, 468-470) It is submitted that *the District Court clearly had no authority to strike down the administrative orders where the plaintiffs failed to prove the records upon which the orders were based.*

II

This case is controlled by the decision of this court in the case of Railroad Commission of Texas, et al. v. Rowan & Nichols Oil Company, decided June 3, 1940.[4]

(1) *The same legal issues are presented as in the Rowan & Nichols case.*

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[3]Plaintiff's Exhibit No. 8, offered R. 138, copied R. 473; Plaintiff's Exhibit No. 8A, offered R. 138, copied R. 476; Plaintiff's Exhibit No. 10, offered R. 139, copied R. 487.

[4]60 S. Ct. 1021, 84 L. Ed. 983.

In the *Rowan & Nichols* case, as in this case, the invalidity of the proration orders was assailed under the Texas statutes as well as the United States Constitution.[5] In that case, as in this case, there was no diversity of citizenship, and federal jurisdiction rested only upon the assertion of a conflict between the Commission's orders and the United States Constitution. In this court's decision in the *Rowan & Nichols* case,[6] all questions except the asserted conflict with the Fourteenth Amendment were eliminated, and upon a consideration of that question, the Railroad Commission's action was upheld. The same legal question is here presented, and, as we shall show in the next sections of this brief, the factual situation requires the same result as in the *Rowan & Nichols* case.

(2) *The same features of the proration orders are objected to in this case as in the Rowan & Nichols case.*

By stipulation of the parties in the *Rowan & Nichols* case, as well as by the findings of the District Court[7] and the Circuit Court of Appeals,[8] it was agreed that the method of distribution under attack in that case resulted in the distribution of about 98%

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[5]See *Rowan & Nichols Oil Co.* v. *Railroad Commission*, 28 F. Supp. 131, 133.

[6]See *Railroad Commission* v. *Rowan & Nichols Oil Co.*, 60 S. Ct. 1021, 1024, 84 L. Ed. 983, 985.

[7]*Rowan & Nichols Oil Co.* v. *Railroad Commission of Texas.* 28 F. Supp. 131, 134.

[8]*Railroad Commission of Texas* v. *Rowan & Nichols Oil Co.*, 107 F. (2d) 70, 71.

of the total field allowable on the basis of a "marginal" or minimum allowance of 20 barrels. In reply to the contention that such a result "gives a constitutionally inadmissible advantage to smaller and more densely drilled tracts as against those owned by respondent," this court held that "a flat per well allowance to these producers was not an unnatural answer to the problem."[9]

In this case also the essential complaint is that the Railroad Commission allows to every well in the field, capable of producing so much oil, a base or minimum allowable of 20 barrels about 75% of the field allowable being distributed on this basis. This was the objection made in the Humble's pleadings (R. 45, 48), at the trial by the Humble's witnesses (R. 162), by the presiding judge of the trial (R. 269) and by the court in its oral opinion (R. 566, 567) and in its findings and conclusions (R. 583).

(3) *In so far as the method of proration in this case differs from the method involved in the Rowan & Nichols case, it is more favorable to Humble Oil & Refining Company than was the method of proration involved in the Rowan & Nichols case.*

Under the method of proration involved in the Railroad Commission's order of June 19, 1939, which was the same as the order involved in the *Rowan & Nichols* case, and which was continued until the order of September 11, 1939, was adopted, the Hum-

[9] See 60 S. Ct. 1021, 1025, 84 L. Ed. 983, 986.

ble was permitted to produce from its leases a total of about 9.932% of the total field allowable.[10] Beginning with the order of September 11, 1939, the Railroad Commission changed the method of proration in several material respects, and *all of the changes were in favor of the operators of leases where the sands are thick and which are not densely drilled.* (R. 198, 350) These changes were as follows: (R. 579, 581)

(a) The total daily field allowable was raised from about 520,000 barrels per day to about 690,000 barrels per day, which had the result of increasing the amount of proratable oil (above the 20-barrel per well allowable) from about 7,000 barrels to about 176,000 barrels.

(b) In prorating the oil above the 20-barrel per well allowable in the order of September 11, 1939, the Railroad Commission considered not merely the factor of the potential of the well involved, but also the factors of sand thickness, acreage and pressure. The factors of sand thickness and acreage directly benefited the leases which have the thick sands and which are not densely drilled. (R. 198, 199)

(c) Under the *Rowan & Nichols* order, there were about 19,000 wells which received a flat 20-barrel al-

[10]The District Court's conclusions of law contain a finding that the order of June 19, 1939, was invalid. (R. 588) The method of proration having been changed before the trial, however, the case was tried entirely with reference to the order of September 11, 1939, and subsequent orders, and the judgment only enjoins such later orders. (R. 570)

lowable, no more and no less. The result of this method of distribution was that no discrimination was made between wells which were capable of producing only 20 barrels per day, and wells which were capable of producing around 20,000 barrels per day, in so far as their current allowable was concerned. On the other hand, under the present order, each well gets an allowable above 20 barrels on the basis of the factors named, the poorer wells receiving only a fraction of a barrel above 20 barrels, and the best wells receiving more than 50 barrels. (R. 198, 350)

(d) As specifically applied to the property of the Humble, the order involved in the *Rowan & Nichols* case permitted a total recovery by said company of about 9.932% of the total field allowable. (R. 582) whereas, under the order attacked in this case, the Humble was permitted to recover approximately 11.17% of the total field allowable. (R. 582)

It will thus be seen that every change that was made by the Railroad Commission in its proration orders of September 11, 1939, and September 29, 1939, as compared with the well potential orders which were in effect at the time of the *Rowan & Nichols* case,[11] were in favor of the Humble and other operators similarly situated. It necessarily follows, therefore, that if the Railroad Commission of Texas acted within its proper administrative discretion in distributing the allowable 98% per well, and only 2% on the basis of potential, then it certainly acted

[11] 60 S. Ct. 1021, 84 L. Ed. 983.

properly in distributing the allowable 75% on a per well basis and 25% on the basis of factors which were admittedly valid, and which were so found by the trial court. (R. 583)

III

The Humble Oil & Refining Company has recovered and is recovering its fair share of the total field allowable and will ultimately recover from the reservoir under the Railroad Commission's plan of proration an amount of oil at least equivalent to the recoverable oil originally in place beneath its leases.

(1) *Basis of Humble's Claim of Injury*

The Humble is admittedly recovering considerably more than it would be allowed to recover on a *straight per well allocation.* Under the present order it is permitted to recover about 11.17% of the total field allowable, (R. 582) whereas, under a straight per well order it would be permitted to recover only about 9.8% of the total field allowable. Even if a minimum or "marginal" allowable were wholly eliminated from the order and the allowable were allocated purely on an *acreage basis,* the Humble would recover a somewhat smaller portion of the total field allowable than it is allowed to recover under this order, since it has only about 11.04% of the total acreage in the field. (See complaint, R. 2 and

defendants' Exhibit No. 8, offered R. 361, copied R. 546) Likewise, even if a minimum allowable were wholly eliminated, the Humble, if the entire allowable were prorated purely on the basis of *well potential*, would be allowed to recover only 11.66%, or only slightly in excess of what it is allowed to recover under the orders which are attacked in this case. (R. 549)

The only basis on which it can be complained that the Humble Oil & Refining Company is not presently recovering its fair share of the total field allowable is on the assumption that it is legally entitled to produce currently an amount of oil *in the ratio of its current oil reserves to the current oil reserves of the entire field.* It was in fact on this assumption that all of the plaintiff's pleadings were based (R. 3, 10, 11, 24, 26, 45, 51) and the case was decided by the District Court. (R. 583)[12]

It is our position that the Railroad Commission is not legally required to prorate on the basis of current reserves and that it may properly consider in framing the plan of proration the amount of oil ultimately to be recovered by each section of the field. If the Humble, considering the entire production from its leases, will obtain an amount of oil equivalent to the recoverable oil originally beneath its leases, it will have received the full measure of its legal rights. *Brown* v. *Humble Oil & Refining Co.*, 126 Tex. 296;

[12]The practical difficulties and unfairness of prorating on the basis of current reserves are discussed *infra*, p. 66.

Gulf Land Co. v. *Atlantic Refining Co.*, 134 Tex. 59. The means of accomplishing this result is a matter which lies within the proper administrative discretion of the Railroad Commission. *Railroad Commission of Texas* v. *Rowan & Nichols Oil Co.*, 60 S. Ct. 1021, 84 L. Ed. 983.

The evidence shows beyond any real dispute that the Humble is not only receiving today a reasonable share of the present allowable, but also that it has not been injured up to the present time and that it will ultimately recover an amount of oil which is substantially equivalent to the amount of recoverable oil originally beneath its leases.

(2) *Past Recovery.* Since Humble's leases were estimated to contain approximately 14.3% of the original oil reserves in the field, it was assumed by Humble witnesses that Humble was entitled to produce 14.3% of the production to date, including all production before proration became effective and all "hot oil" (oil illegally produced).[13] Humble has, however, produced about 131,364,982 barrels (R. 116) which is about 9.6% (R. 132) of the estimated total production of 1,365,000,000 barrels. (R. 115, 136, 578) By simple subtraction, it was therefore

[13]The total estimated recovery of 1,365,000,000 barrels to date of the trial (R. 115, 136) included all "hot oil" produced, although witnesses for the oil companies were not able to state how much "hot oil" was so included. (R. 115, 306) The Railroad Commission was defeated in all of its attempts to limit the production from the East Texas field prior to April, 1933; production prior to that time was practically at the will of each operator. (R. 387) The District Court, however, charged the Railroad Commission with responsibility for all production which took place even prior to or in violation of its orders. (R. 578)

concluded that Humble has "lost" 4.7% of the past production of the field, or 64,000,000 barrels. (R. 133). This calculation in fact had nothing to do with physical depletion of the Humble's leases (R. 183, 186), but the District Court erroneously assumed that it did, and concluded that Humble had been permitted to produce in the past only "11/15 as much oil per acre-foot of its oil sand depleted as the field as a whole has been permitted to produce per acre foot of sand depleted." (R. 578)

Of course, the questions as to whether the Humble has produced in proportion to its current reserves and whether it has suffered any depletion are two entirely different questions.[14] The method of proration adopted by the Railroad Commission is designed to make adjustments which allow for the long or short productive periods of various portions of the field. Even assuming that the Humble has not produced to date an amount of oil in proportion to its current reserves, still this is no proof that Humble has been injured. The question of injury can be determined solely on the basis of whether there has been actual physical depletion of the Humble leases in excess of the amount of oil which has been produced from the Humble wells.

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[14]We use the term depletion throughout this brief to mean an actual reduction in the amount of recoverable oil beneath a lease. The engineers for the oil companies had apparently a very special meaning for depletion to describe any production from a lease, regardless of whether such production was fully replaced by migratory oil pushed in by the water drive. For example, Mr. E. O. Buck made the startling assertion that "some of those leases have been depleted 200 per cent and *have still got as much oil as they ever had.*" (R. 312)

The extent of physical depletion can best be estimated by first ascertaining the decrease in the number of acre feet of oil saturated sand beneath the Humble's leases. The Humble witnesses were singularly reluctant to give any figures showing the extent of the actual physical depletion of Humble leases.[15] Insistence, however, brought out physical facts which show that although the Humble has not produced as rapidly in proportion to its reserves as some operators, its leases have not been drained except to the extent that Humble has produced oil therefrom.

The Humble, according to its own witnesses (R. 116, 137) has produced about 131, 364, 982 barrels (R. 578). At the same time, the number of acre feet of oil saturated sand beneath its leases which have been actually depleted is only 119,400 acre feet, according to one method of calculation (R. 137), or 120,026 acre feet according to another method of calculation by Humble's expert, Mr. Moore. (R. 190)[16]

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[15]Although he was confident that the Humble's proportion of the total reserves had remained constantly at 14.3% (R. 84, 102), the witness I. L. Sorenson was unable to give an estimate of the number of acre feet of sand in the whole field or under the Humble's leases. (R. 102, 103) Likewise, Mr. T. V. Moore at first could not give the Humble's estimates of the acre feet actually depleted underneath the Humble leases and the field as a whole. (R. 188) When counsel for the Railroad Commission pressed Mr. Sorenson for the physical facts as to water encroachment, etc., to try to arrive at some method for checking the accuracy of his estimates of depletion (R. 120-125), the District Court impatiently stopped the cross examination on the ground that the witness "hasn't got the figures here, and can't back his opinion up with those details, so you will have to drop it right there, as far as he is concerned." (R. 125)

[16]In this connection it is interesting to note that the Humble's engineers reduced their estimate of their depletion from about 147,000 acre feet in their reply to the Railroad Commission's questionnaire in August, 1939, to the estimate of 120,000 acre feet given at the trial. (R. 456)

Substantially, the same estimate was made by Doctor Gardescu, for the Railroad Commission, upon a careful study of all available data. (R. 451) Mr. Sorenson's figures show that the actual depletion has been only 112,493 acre feet, (R. 327)[17] but he later adopted Mr. Moore's estimate of 120,026 acre feet depleted. (R. 334)

By dividing the amount of oil produced by the number of acre-feet depleted, one can readily see that the Humble has produced at the rate of about 1,100 barrels of oil per acre foot depleted under its leases, which is at least the average recovery per acre foot, exceeding in fact the estimates by some of the witnesses as to the average recovery per acre foot in the field. T. V. Moore, a Humble witness, testified that the past recovery per acre foot for the field had been about 1,100 barrels, (R. 136, 188) that in the future it would be between 900 and 1,000 barrels, and that the average would be about 1,000 barrels (R. 189). E. O. Buck, the expert for Rowan & Nichols Oil Company, estimated the average recovery per acre foot at 927.40 barrels (R. 249). I. L. Sorenson, another Humble expert, testified that the actual recovery to date was about 1,100 barrels per acre foot (R. 333), while the average future recovery would be about 900 barrels per acre foot. (R. 330)

From these figures, all given by the oil companies'

[17]This is arrived at by subtracting from the original number of acre feet beneath Humble's leases, 707, 770 (R. 136) the number of acre feet remaining, 595, 277 (R. 327), as estimated by Mr. Sorenson.

witnesses, the conclusion was inescapable that Humble has not suffered any drainage by other operators, and that it has at least recovered an average amount of oil per acre foot of its leases actually depleted. This conclusion is further supported by the testimony of the Humble's witnesses that, although much acreage has been abandoned on both sides of the field by other operators, *the Humble leases have substantially as many productive acres now as when the field was opened* (R. 101), *and that Humble has* 6,921 *acres from which it has produced* 53,000,000 *barrels, and which acreage has still as much oil underneath it as when the field was first opened.* (R. 95, 96, 135, 171) Although the Humble has over 9% of the wells in the field, it has had to abandon only 14 wells as against 613 wells abandoned in the field, or only about 2% of the abandonments. (R. 392, 393) Although the field as a whole has been depleted between 25% and 27%, the Humble leases have been depleted only 17%.[18]

In order to try to avoid the inescapable conclusion from their own figures, the Humble experts were forced to take the position in substance that the Humble's estimates of acre feet were unreliable, being "subject to some inherent errors." (R. 191, 194)

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[18]Humble's engineers estimated that the original number of acre feet in the field was 4,961,546 (R. 80, 101, 136) and that 1,250,000 acre feet had been depleted (R. 136) or about 25%. They also estimated that originally there were 5,000,000,000 barrels of recoverable oil in the field (R. 115) of which about 1,365,000,000 barrels (R. 115, 136) or about 27% had been produced. Humble's leases were estimated to have had originally 707,770 acre feet of oil sand (R. 81, 101, 136) of which about 120,000 acre feet were depleted (R. 137, 190) or a depletion of only about 17%. The Rowan & Nichols Oil Company's expert, Mr. Buck, estimated that the whole field had been depleted 31.23% (R. 310).

To explain these "inherent errors" and the failure of the facts to coincide with the Humble's conclusions, the Humble expert speculated that there was "a substantial amount of oil" below the generally accepted original water level of 3,320 feet below sea level. (R. 192) An alternative explanation was that although Humble leases produced only 1,100 barrels per acre foot depleted, the rest of the field produced 1,499 barrels per acre foot. (R. 328) This explanation is at variance with the actual estimates of recovery by the experts who testified at the trail.[19] In other words, where the best estimates of its own experts, based on actual physical depletion, failed to support its theory, the Humble repudiated its own estimates and resorted instead to the application of the magic figure of 14.3% to estimate its past "losses." This method was also followed by the District Court in its findings in complete disregard of the physical facts. (R. 578) Both the Humble and the District Court in refusing to be guided by the actual facts relating to depletion, ignore the fact that *the Humble's whole case rests on the ability of its engineers to estimate accurately the acre feet of oil sand and the amount of oil contained therein.* Unless this is assumed, there can be no validity to the Humble's assertion that it has 14.3% of the oil sand

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[19]Humble witnesses: Moore, 1,100 barrels (R. 189); Sorenson, 1,100 barrels (R. 333).

Rowan & Nichols witness: Buck, 927.40 barrels (R. 249).

Dr. Gardescu testified that in 20 years' valuation experience, he had never heard of a recovery of 1,500 barrels per acre foot. (R. 458) Compare the court's finding (R. 577) that "competent petroleum engineers and geologists will agree fairly well concerning the amount of oil per acre foot of net oil sand in place in the East Texas field."

and the oil reserves and no basis for its argument that it is being deprived of its fair share of the oil; if it is assumed, then the actual facts show that Humble's leases have not been depleted.

(3) *Present Recovery.* In stating its present "losses," the Humble followed the same deceptively simple method as in stating its past "losses": It assumed that it was legally entitled to produce in proportion to its current reserves, estimated that its current reserves are 14.3% of the total current field reserves, while it is allowed to produce only 11.17% of the current allowable, and thereby arrived at the conclusion that it is currently losing the right to produce 3.13% of the total field allowable. These estimates were adopted by the District Court. (R. 583) They have nothing whatever to do with the question of whether or not the Humble's leases are being drained by other operators, but constitute mere juggling with figures.

The position of the Railroad Commission is that there is no legal compulsion on the Railroad Commission to allow each operator to recover currently in the simple ratio of his estimated current reserves to the current reserves in the whole field, and that in fixing the proration formula, the Railroad Commission has a right to make adjustments for the varying tempos of production by the various parts of the field. In this position it believes that it has the support of this court's decision in the case of *Railroad Commission of Texas, et al.* v. *Rowan & Nichols Oil Company*, 60 S. Ct. 1021, 84 L. Ed. 983.

Since Humble has suffered no actual depletion to date, since it is now permitted a substantial current recovery, and since (as we shall discuss in the next section of this brief) Humble will ultimately recover an amount equivalent to the recoverable oil originally in place beneath its leases, it is submitted that Humble wholly failed to show that it is being arbitrarily or unreasonably treated by the Railroad Commission.

(4) *Future Recovery.* Here again, the Humble adopted the simple method of calculating its future losses by subtracting from 14.3% of the total estimated future recovery of the field 11.17% of such estimated recovery, and stating that the difference would be its future loss. By this method, the witness, T. V. Moore, reached the conclusion that the Humble's future losses would be about 100,000,000 barrels (R. 144). However, this method of estimating their future recovery so obviously overlooked the fact that the Humble properties would produce much longer than the average properties in the field, that the same witness later admitted that the Humble would not actually lose 100,000,000 barrels, but that in his judgment it would actually lose somewhere between 45,000,000 and 85,000,000 barrels (R. 145). On cross examination, this witness admitted that because of the favorable location of the Humble leases, their percentage of the field allowable would (assuming the continuation of the same proration orders) naturally increase, due to the longer producing life of their leases. (R. 194, 195) He admitted that his esti-

mates of recovery were subject to a considerable chance of error. (R. 168)

Even the District Court did not accept the Humble's estimates of future "losses," but merely found that "there is necessarily much uncertainty involved", (R. 567) that the fairway leases "may not obtain" recoveries comparable to leases in other portions of the field, that the Humble's leases "will probably ultimately suffer" if the present orders and schedules are maintained in force (R. 585), and that such loss "will probably amount to an enormous figure over a period of years" (R. 587). Nevertheless, the court was willing to make a finding that, "There is nothing in the orders or program of the Commission which even suggests that the losses already incurred by plaintiff, and to be incurred by the present program, can or will be offset by increasing the allowable of the plaintiff in the future in order to make up for any losses which have occurred or may hereafter occur." (R. 587)

This conclusion is entirely inconsistent with the facts conceded even by Humble experts that Humble's share of the production will increase as various parts of the field are abandoned and that Humble's leases, being mainly in the fairway, will have long producing lives. (R. 195)[20] They also en-

[20]It was undisputed that wells producing water will have comparatively short lives. 17% of the wells in the field are making water, but only 4.3% of the Humble wells are making water. (R. 392) Similarly, pumping wells have shorter lives than flowing wells. 26.4% of the wells in the field are on the pump, whereas only 10.5% of the Humble's wells are pumpers. (R. 392)

tirely ignore the positive testimony by the expert witnesses for the Railroad Commission that Humble will ultimately recover at least the equivalent of the oil beneath its leases.

J. S. Hudnall, a recognized expert who has specially studied the East Texas field from its first discovery to date (R. 387), stated that based on his study of the field and the Humble leases, the Humble would be permitted under the present plan of proration to recover substantially the oil in place under its leases. (R. 395-396) On cross examination, Hudnall explained that by reason of the location of the Humble leases, they would produce at least 25% longer than the average of the field, and would therefore recover at least as much oil as is now under them. (R. 414, 416) In arriving at his estimates, Hudnall took each Humble lease and made a detailed calculation of the acre feet of sand under every lease that Humble had. (R. 417)

An equally careful study of Humble's leases was made by Doctor Ionel I. Gardescu, an independent expert of recognized training and experience. (R. 448-450)[21] This witness worked two weeks "day and night" (R. 455) using all available data, rela-

[21]Doctor Gardescu's training and experience are as follows: (R. 448-450) Three years Polytechnic University, Rumania; one year Royal Technical College, Glasgow; graduate in petroleum engineering, University of Pittsburg; Ph.D. in petroleum engineering, University of California; post-graduate work, Stanford University; employed by Rumanian government and Standard Oil Company of New Jersey in Rumania; teacher in petroleum valuation, University of Pittsburg and Texas A. & M. College; research work for Texas Company and other oil companies; author of various technical articles; 20 years' experience in petroleum engineering and valuation.

tive to the Humble leases, including all information furnished to the Railroad Commission by the Humble, such as well logs, water reports, Schlumberger electrical logs, etc. (R. 450-451) From these records he calculated, using a method customarily used by him and found to be reliable, that the actual physical depletion of the Humble leases to the time of the trial was about 119,035 acre feet (R. 451) which was substantially the same as the estimate of *actual* depletion arrived at by the Humble experts. Based on their production to date, he concluded that the Humble would produce from its leases during their productive life under the method of proration attacked 780,000,000 barrels of oil, or a recovery of about 1,100 barrels per acre foot. (R. 452-453) This recovery is in excess of 14.3% of the total estimated recovery from the field.[22] This recovery is also larger than the average recovery per acre foot for the field estimated by the Humble's witnesses, T. V. Moore, who estimated 1,000 barrels per acre foot (R. 189) and I. L. Sorenson, who estimated about 900 barrels future recovery for the field as a whole. (R. 330) The inescapable conclusion is that Humble's leases will not be drained, but that their total production will at least equal the amount of recoverable oil originally beneath those leases. This witness was cross examined in detail by Humble's lawyer (R. 453-459) who brought out nothing whatever to discredit either the witness or his conclusions, and no testimony was offered in rebuttal thereto.

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[22] 14.3% of Humble's estimate of the field's total ultimate recovery, 5,000,000,000 barrels (R. 115) is 715,000,000 barrels.

The findings of the District Court are in direct disregard of all evidence based upon the well known physical characteristics of the field, and amount to a finding that the Railroad Commission is not entitled to rely on expert opinion as to future recovery in formulating the present distribution.

IV

The 20-barrel base or minimum allowable is reasonably necessary to permit a fair recovery of oil by wells located on the western and eastern sides of the East Texas field and on small tracts, and to prevent the physical waste of oil which will be recovered only through such wells.

(1) *The minimum or base allowable*

Under the order attacked (plaintiff's Exhibit 8-A, offered R. 138, copied R. 476) each well in the field which is capable of producing 20 barrels of oil per day is allowed a base or minimum allowable of 20 barrels. (R. 581)[23] By reason of the fact that the shut-down order of the Railroad Commission allowed production from such wells for only 17 days out of the month, the average minimum allowable was reduced to 11.7 barrels per day (R. 363, 375, 403, 566).

[23] This base or minimum allowable is popularly called the "marginal" allowance, and was so referred to by witnesses in the *Rowan & Nichols* case which was tried in 1939.

The practice of the Railroad Commission of fixing a base or minimum allowable of 20 barrels to each well capable of producing that much oil has been in effect under the orders of the Railroad Commission and the proration schedules ever since June, 1933. (R. 440) There is no statutory requirement that every well in the field be allowed at least 20 barrels per day, Article 6049b applying only to "marginal" wells, which are defined in the statute as pumping wells which are incapable of producing more than 20 barrels per day.[24] The reasons impelling the Railroad Commission to grant the 20-barrel allowable are stated in the first order adopting the method of proration under attack in this case, the order of September 11, 1939 (plaintiff's Exhibit 8, offered R. 138, copied R. 473). In this order it is recited that the Commission finds from the evidence submitted at its hearing that in order for each producing well to be allowed to produce its fair share of the allowable oil from the East Texas field, and in order to prevent waste, the method of allocation and distribution of the field allowable between producing wells should incorporate a minimum well allowable. Said order continued the practice theretofore existing of fixing the minimum allowable at 20 barrels.

(2) *Objections to the minimum fixed by the Railroad Commission*

The issue in this case is not whether *some* mini-

[24]See *infra*, p. 77.

mum allowable should be granted by the Railroad Commission, but simply whether the minimum fixed by the Railroad Commission is excessive.

In a letter which it wrote to the Railroad Commission, relative to the proper order to be entered prorating the allowable in the East Texas field, the Humble stated that it would offer no objections to a formula "prescribing a reasonable minimum unit allowable." (R. 336, 337, plaintiff's Exhibit 38, offered R. 336, copied R. 545). In connection with this letter, it was stated at the trial by the Humble's attorney that the intention was to recommend a minimum allowable per unit of area on acre feet, and not per well. (R. 337) In the court's oral opinion, delivered February 21, 1940, the court states, "It is not now urged that no basic flat per well allowable should be made, but only that three-fourths of the whole should not reasonably be so apportioned." (R. 566)

The essential objection to the minimum allowable, therefore, is the same as the objection made to the same allowable in the *Rowan & Nichols* case,[25] namely that it takes up so much of the total field allowable (in this case 75%) that there is not enough left to distribute on the basis of the other factors considered in the proration formula. It is claimed that the result of this distribution is that an unduly large recovery is permitted for leases on the edges of the field or leases which are densely drilled, at the ex-

[25] 60 S. Ct. 1021, 84 L. Ed. 983

pense of leases in the "fairway." This is clearly shown by the court's oral opinion (R. 566, 567), and in the court's findings and conclusions. (R. 583)

In this connection, it should be kept in mind that the objection raised by the Humble and other similar operators is not that the regulation of the Railroad Commission permits them to recover less oil than they could recover without regulation, but simply that they are not permitted to recover what they consider to be their fair share of *the increase in the production resulting from regulation.* It was admitted that under the method of proration in effect, the entire field would recover from 25% to 50% more oil than it would recover under unregulated flow, although Mr. Moore, the Humble expert, testified that this increased recovery would go mainly to the east and west sides, whereas the fairway would recover only about the same amount of oil which it would recover under an unregulated flow. (R. 183)

Mr. Buck, expert for Rowan & Nichols Oil Company, testified that even under a straight per-well allocation, all parts of the field would receive a larger recovery than they would under unregulated flow (R. 298), while Dr. Patten testified that by reason of the regulation of the Railroad Commission, the ultimate recovery from the East Texas field had unquestionably been increased. (R. 340-341) The objections to the allowance by the Railroad Commission of a minimum allowable therefore resolved

themselves into the contentions that too much of the *increased recovery* is allowed to go to tracts which are densely drilled and to tracts having thin sands in the outer portions of the field.

(3) *The minimum fixed by the Railroad Commission is not higher than is reasonably necessary to permit the operation of wells throughout the field and in order to prevent their premature abandonment.*

As we have already pointed out, the average minimum allowable, considering the shut-down days, is only 11.7 barrels per day. This allowable is given to all wells in the field which are capable of making that amount. The reasons for granting an allowable of this amount may be briefly summarized as follows:

(a) It is necessary to give this allowable to pumping wells in order that they may not be prematurely abandoned, resulting in the confiscation of the property of the owners of such wells, and a loss of oil which can be recovered only through such wells.

(b) It permits owners of small tracts to drill and operate wells on their own tracts.

(c) It is granted by the Railroad Commission to other wells, because the Railroad Commission feels that it would be unreasonable to reduce the

better wells below the amount granted to the poor wells, in the absence of proof that a relative reduction of such better wells is necessary in order to prevent physical waste.

The evidence shows that there are 4,422 wells in the field producing water (R. 362) and that there are 6,788 pumping wells (R. 392).

The finding of the District Court apparently is that the Railroad Commission should have reduced the minimum allowable to somewhere between five and ten barrels (R. 567, 586).

There is no clear or convincing evidence in the record supporting the court's contention that a five-barrel minimum is sufficient. Mr. T. V. Moore, the expert for the Humble, testified that a five-barrel daily allowable was sufficient for an "average pumping well" (R. 181), but he admitted that he did not personally know the operating costs and that he could not testify with any authority upon this subject. (R. 182)

Mr. A. H. Rowan, President of Rowan & Nichols Oil Company, also testified that a five-barrel minimum allowable would be sufficient (R. 227, 228), but he later admitted that this included merely the operating costs and did not include any items for repaying the cost of drilling the well and equipping it with pumping apparatus, or paying reasonable interest and return on the investment. (R. 229) At one time, he testified that a pumping well could

be operated on five barrels per day with a profit of $75 to $100 per month (R. 230), but he afterwards admitted that this was impossible, since the gross income from such a well would not exceed $95 per month, and that what he really had in mind was flowing wells and not pumping wells. (R. 244)

Mr. Buck, the expert for Rowan & Nichols Oil Company, refused to testify as to whether or not a five-barrel minimum would be adequate for pumping wells in the field, as a general proposition. (R. 266) No expert for the oil companies who claimed to have any knowledge of the subject, testified as to the amount necessary to permit operation of pumping wells in the East Texas field without causing premature abandonments.

The burden was certainly upon the persons attacking the orders of the Railroad Commission to show that the orders were so unreasonable and arbitrary as not to have a rational basis. *Railroad Commission of Texas* v. *Rowan & Nichols Oil Co.*, 60 S. Ct. 1021, 84 L. Ed. 983. The evidence offered by the oil companies was at best indefinite and uncertain.

To support the allowance of the minimum permitted in the orders, the Railroad Commission offered the evidence of Mr. J. S. Hudnall, who had long experience in engineering and valuation work in the East Texas field, who testified definitely that the allowable permitted by the Railroad Commission was necessary to prevent abandonment of

pumping wells, particularly on the west side of the field where water has encroached and the pumping costs are higher than in other portions of the field (R. 403, 435), that while a minimum of five to ten barrels might be sufficient in the center of the field where wells are flowing, it is not sufficient for wells located on the edge of the field, (R. 436) that in his own experience he had had to plug a well which was making 10 barrels per day (R. 436) and that if the present minimum were reduced, there would be danger of premature abandonment of between 3,000 and 4,000 wells. (R. 437) Dr. Patten testified that because of the shale breaks causing traps of oil in the western portion of the field, the abandonment of such wells would cause the loss of oil that can be recovered only from these wells. (R. 364)

(4) *The minimum allowable fixed by the Railroad Commission does not have the effect of confiscating the property of operators in the fairway for the benefit of operators on the west side or the east side of the field.*

(a) *West side*

The order of the Railroad Commission attacked in this case does not fix a flat per-well allowable, but grants allowables which range from about 20 barrels per well for wells on the edges of the field to over 50 barrels per well for wells located in the center of the field. (R. 350) In other words, a substantial distinction is made between leases having thick sands and wells with high potentials, the bet-

ter wells being allowed to produce in some instances as much as two and one-half times as much as wells on the edge of the field. (R. 198) The District Court found, however, that insufficient weight was given to the factor of sand thickness, and that as a result, the base or minimum allowable permitted a drainage of oil from the fairway to other portions of the field. (R. 583, 584)

It is submitted that the court's finding wholly disregards the physical facts in the field, and particularly those relating to the producing lives of the various parts of the field. While the Railroad Commission's order does not at present allocate the allowable in proportion to the estimated acre feet of sand beneath the various portions of the field, the fairway leases, by reason of their long productive life, will ultimately recover an amount of oil substantially equivalent to the recoverable oil in place beneath their leases.

It is recognized by all of the experts that the principal source of energy in the East Texas field is the water pressure (R. 575) which is exerted by the water on the west side of the field laterally and vertically, and that as the field is produced, oil is forced eastward by the water pressure. (R. 576) The effect of this water encroachment is that in those portions of the fairway where water has not yet encroached, there is still as much oil in place beneath such leases as there was originally, although the field has produced over nine years. (R. 95, 96, 106) It also inevitably follows that the leases in the fair-

way are drawing oil from the leases on the west side, that the leases on the west side will be first drowned out by water by reason of its encroachment from the west, and that if the leases on the west side of the field are not permitted to produce now at a relatively high rate as compared with other portions of the field, they will never be able to produce their oil. (R. 85, 91, 422, 446)

Abandonments are taking place on the west because of water encroachment (R. 78, 363), about 450 wells having been abandoned prior to the trial. (R. 391) The marginal allowable to the west side wells permits them to recover at the present time at a relatively high rate, thereby offsetting to some extent their handicap by reason of their short productive life and by reason of the fact that the production in other portions of the field at the same time draws oil from underneath their leases. (R. 358)[26]

(b) *East side*

The leases on the east side of the field also have a shorter life than the leases in the center of the field, but for a different reason. The oil sand in the

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[26]Testifying at another trial with reference to a per-well allowable, the Humble expert, I. L. Sorenson, said: (R. 331)

"The thinner sand areas to the westward if allowed to be drilled to the same density as the thick sand section would be a fair proposition because the *lower structure wells would be drowned out at an earlier time and the thick sand section wells would produce longer and thereby recover their fair share of the oil.*"

Mr. Buck estimated that, while the west one-third of the field lost 50% of its oil under open flow, it lost only 15% to 25% under proration with a 20-barrel minimum per well. (R. 318)

East Texas field is not completely permeable, and the result has been that as the field has been produced, a pressure gradient has been set up, the high pressures being on the western side of the field next to the water-oil contact line, while the lowest pressures are on the east side of the field. While the original bottomhole pressure in the field was about 1,650 pounds per square inch, at the time of the trial the pressure gradient ranged from about 1,200 pounds per square inch on the west to an average of about 900 pounds per square inch on the east. (R. 575) The lack of pressure on the east side of the field has the result that the wells on the east side of the field are less productive[27] and go on the pump sooner than the wells in the center of the field. As the field is produced, the lack of pressure on the east side of the field has caused and will cause wells to be plugged and abandoned before the water from the west side ever reaches them. (R. 417) Unless the wells on the eastern side of the fairway are permitted to produce at a relatively high rate currently, the formation of a gas cap due to the reduction of pressure on the east side will have the effect of forcing oil down structure and away from such leases. (R. 359)

The lack of pressure on the east side is not only due to the difficulty of forcing the oil and water through the sand even in the most permeable parts of the field, but is also due to the fact that the amount

[27]East side wells will average a production of only 900 barrels per acre foot, whereas the average recovery per acre foot for the whole field will be about 1,000 barrels and for the west side about 1,100 barrels, according to Humble's T. V. Moore. (R. 189, 190)

of shale and other impermeable material increases from about 10% or 15% in the center or thickest section of the field to about 75% on the eastern side. (R. 108-109) The result of these factors is that the wells on the east side of the field have a shorter life than wells in the center of the field. (R. 206) In fact, there have been 163 wells abandoned on the east side of the field (R. 391), even though this part of the field is the highest part and would be the last to be abandoned if abandonments were solely due to the encroachment of water.[28]

Although the attempt was made to confine abandonments on the east side to a strip of several hundred feet (R. 206), Mr. Hudnall testified without contradiction that abandonments have taken place as much as a mile east of the eastern edge of the field. (R. 411) This is not confined to any particular portion of the east side of the field, but extends all up and down the east end of the field. (R. 417) The past history of the field indicates that approximately one-fourth to one-third of the abandonments will take place on the east side of the field (R. 391) and that the zone of abandonment will gradually encroach from the east side, as well as from the west side, toward the center of the field, where the longest production will take place.[29]

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[28]Even the Humble has had to abandon wells on the east side due to lack of pressure. (R. 104)

[29]To a certain extent, leases located in the eastern portion of the field; where the sands are still thick and permeable, have a structural advantage which will probably allow them to produce longer than leases to the west of them. As far as this advantage is concerned, however, it is a natural advantage by reason of position on the structure, and is an advantage which could not be eliminated by

The "fairway", not only by virtue of its greater current production in comparison with other portions of the field but also because of its long producing life, will produce at least the equivalent of the recoverable oil in place beneath that section of the field. (R. 432-433)[30] As the western and eastern sides of the field are abandoned, those wells which are left in the center of the field, where most of the Humble's wells are located, will receive a larger percentage of the current allowable, because of the fact that there will be fewer wells among which to divide the total field allowable. (R. 447)

(5) *Considering the East Texas field as a whole, the minimum allowable fixed by the orders of the Railroad Commission does not permit wells drilled*

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the Railroad Commission by any method of regulated production which permits current production by all portions of the field. (R. 186, 271, 303, 319)

[30]Probably the most convincing evidence that the leases in the fairway, with the thick sand, will not lose oil by reason of the Railroad Commission's proration formula, is to be found in the testimony of Mr. I. L. Sorenson, one of the experts for the Humble, at the trial of another case, in which the Humble Oil & Refining Company was a party. Speaking with reference to a method of proration under a formula which was substantially a per well allowable, Mr. Sorenson testified as follows with reference to the effect of the longer producing life of the center of the field, as compared with the leases on the eastern side of the field: (R. 331-332)

"Q. Then, according to your contention, one well in an area where there is 100 feet of sand will drain an area just as far as a well located in an area where there is ten feet of sand, all things being equal?

"A. Yes, sir. *the longer life will make up the difference.*

"Q. Does that apply to the *east side* of the field too?

"A. It applies to the east side in the sands if they are higher on the structure and the permeable sands they will have a very long life, *but beyond the fairway going eastward the dense tight sands will have a shorter producing life. They will die out because not enough pressure there to shove any oil into the wells in the tight sand areas. They will die out sooner. That is being effected now. We are feeling that on a good many leases at this time.*"

upon densely drilled tracts to recover a disproportionate share of their total allowable.

The Railroad Commission order does not ignore acreage, but makes it one of the factors in determining the allowable of each well. (R. 582) By the application of this factor, wells on less densely drilled tracts are given a higher allowable than wells on densely drilled tracts. (R. 350, 198, 199) The complaint against the Commission's plan in this respect is essentially that not enough weight is given to acreage.

The East Texas field is drilled to a density of about one well to 5.17 acres, and the leases of Humble Oil & Refining Company are only slightly less densely drilled, the Humble leases being drilled to a density of one well to 5.8 acres. (R. 578) Of the 2,545 wells drilled on the Humble leases, 1,527 wells, or about 60% have been drilled on the Humble's application as exceptions to Rule 37. (R. 463) The Humble is not complaining of any refusal by the Railroad Commission to grant them additional drilling permits. (R. 460).

The spacing rule for the East Texas field was not designed to fix a spacing of 10 acres in the East Texas field, but was designed to permit the Railroad Commission of Texas to supervise the drilling of wells in the field, in order to insure the maximum recovery of oil from the field.[31] Under Rule 37, the

[31]See *Gulf Land Co.* v. *Atlantic Refining Co.*, 134 Texas 59, 69: "Before proceeding further, we wish to say that we do not understand that the Commission, by the promulgation of Rule 37, has undertaken to say that it will be presumed that any well drilled at lesser distances than the minimum spacing distances named in the rule will cause waste, in the sense that in such instances oil will ultimately be lost in the ground that would be saved if such minimum spacing distances were observed. The Commission is charged generally with the conservation of oil and gas in their production, storage, and transportation. Art. 6014, as amended. The Commission must make rules, regulations, and orders to accomplish conservation of oil and gas. Art. 6029, as amended. One of the things that the Commission must do to conserve oil and gas is to see that oil and gas fields are drilled in an orderly and scientific manner. *In order to accomplish orderly drilling, the Commission has simply promulgated a rule fixing minimum spacing distances at which wells may be drilled without application, notice, or hearing.* Any one desiring to drill a well at a lesser distance must secure a special permit, after notice and hearing. Such applicant assumes the burden of proof that such well is necessary to prevent waste, or to prevent the confiscation of property. After the Commission acts, its order either way is presumed to be valid. Railroad Commission v. Magnolia Petroleum Co., 130 Texas 484, 109 S. W. (2d) 967. *Simply stated, the Commission must supervise the development of oil and gas fields. In order to do this, it has the power to devise some reasonably definite plan or pattern to start with. It has devised a plan or pattern by which it starts by allowing wells to be drilled, as a matter of course, at certain minimum distances.* After that, in order to drill wells, special permits must be had." (Our emphasis)

[32]This was the testimony of I. L. Sorenson, one of the Humble experts, who admitted that at a prior trial he had testified as follows, with reference to the spacing of wells by the Railroad Commission: (R. 332)

"Q. In arriving at the number of wells a man is entitled to drill in any given area you give no consideration whatever to the thickness of the sand; that is not a factor you would take into consideration?

"A. *No, I would consider the adjoining tracts to the lease in question. If you maintained that average you will get your fair share of the oil.*"

Railroad Commission follows the policy of generally allowing each operator to drill to a density comparable with that of the density within the area surrounding his lease. By maintaining about the average density of surrounding leases, each operator will be able to obtain substantially his fair share of the oil.[32] The East Texas field, because of the existence of many small tracts, and a great diversity of surface ownership, has not been regularly drilled,

but in this respect, the East Texas field is no different from other fields which were developed at about the same time. (R. 297-298)

There was much talk at the trial of extreme examples of very dense drilling, and of course examples can be found where the leases of the Humble Oil & Refining Company will be at a density disadvantage as compared with other leases in the field. It was admitted, however, that "quite a number" of examples could be shown in which the Humble leases are very densely drilled and have an advantage. (R. 184)

In the whole field there are 13,977 wells on leases which are drilled to a density of one well to five acres or more, whereas there are only 11,787 wells on tracts drilled to a density of one well to less than five acres. (R. 98) Leases drilled on very small tracts have very little influence on the allowables granted to other wells, because there are so few wells drilled on small tracts. (R. 357) Wells drilled on tracts where the density is one well to less than one acre comprise only 3.43% of the total number of wells in the field. (R. 356) About two-thirds of the wells in the field are located on leases drilled to approximately the same density as the leases of Humble Oil & Refining Company. (R. 357)

Under Rule 37, permits to drill wells upon small tracts are granted by the Railroad Commission only after a hearing, and as a result of a finding by the Railroad Commission at such hearing that the

drilling of such wells is necessary to prevent physical waste or to prevent the confiscation of the property of the operator making the application for the well. Persons who are dissatisfied with the orders of the Railroad Commission granting permits to drill wells as exceptions to Rule 37, are authorized by the statute[33] to appeal to the District Court of Travis County, Texas, and in many cases the oil companies have taken advantage of this provision of the statute. Some of the permits have been canceled by the courts, while others have been upheld. Each of the permits which is now in effect represents a finding by the Railroad Commission, either unassailed in court or supported in court upon attack, that the well in question is necessary either to prevent waste or to prevent the confiscation of property. For the purposes of this case, therefore, it must be assumed that each of the permits for each of the wells in the field was validly granted upon facts duly sustaining the orders of the Railroad Commission, and that the operator of each of these wells has a vested right therein which the Railroad Commission cannot disregard in distributing the allowable production in the East Texas field.

The granting by the Railroad Commission of a minimum allowable to all the wells in the field has encouraged the development of the field, with a consequent increased recovery of oil which otherwise would not be produced. For example, since January 1, 1934, some 3,550 wells have been drilled around

[33]Article 6094c, Section 8, Revised Civil Statutes, *infra* p. 81.

the margins of the East Texas field, thereby extending the developed portions of the field. These wells will produce about 100,000,000-150,000,000 barrels of oil, and a substantial part of their production would not have been produced at all if these wells had not been drilled. (R. 402-403) In other parts of the field, where local traps exist, the drilling of wells at a relatively high density is necessary in order to prevent the waste of oil which cannot be recovered, even through wells on the property of other operators. (R. 364)[34].

While densely drilled leases may for the time being produce at a greater rate than less densely drilled tracts, the densely drilled areas will produce for a shorter period of time than the less densely drilled areas. (R. 197, 404) The longer life expectancy of the less densely drilled tracts is therefore a compensating factor which tends to offset any current advantages received by relatively densely drilled leases.

V

The proration of the production from the East Texas field on the basis of current reserves would give unfair advantage to the

[34] By drilling additional wells, the Humble would recover additional oil which will not be produced through any existing wells, and would thereby prevent waste. (R. 415, 416) Humble's attorneys, however, expressly stated that they did not wish the Railroad Commission to consider giving them permits to drill more wells. (R. 461; 469).

leases in the fairway, where most of the leases of the Humble Oil & Refining Company are located, and would result in the confiscation of the property of other operators.

(1) *The Position Taken by the Humble and the District Court*

The Humble Oil & Refining Company has consistently contended that the allowable from the East Texas field should be substantially prorated on the basis of the current reserves beneath its leases as compared to the reserves in the entire field.[35] The District Court in effect adopted Humble's contention as to the proper basis of proration. The interlocutory injunction obtained by the Humble on August 11, 1940, enjoined the Railroad Commission from enforcing any order against the leases of the Humble Oil & Refining Company that restricted their production below 144% of the amount allocated to such leases under the orders of the Railroad Commission which were then in effect, this percentage having been arrived at on the basis of the Humble's current reserves. (R. 40) In its findings and conclusions, after the trial on the merits, the District Court measured the Humble's right to recover solely by the standard of whether it was permitted to recover in proportion to its current reserves. (R. 578, 583, 585)

[35] See Humble's application to Railroad Commission, dated June 16, 1939 (Plaintiff's Exhibit No. 31, offered R. 335 copied R. 515); Humble's letter to the Railroad Commission, dated August 8, 1939 (Plaintiff's Exhibit No. 38, offered R. 3[illegible], copied R. 545); Humble's complaint (R. 3, 10, 11, 24, 25, 26); Humble's supplemental complaint (R. 45, 51).

(2) *Inaccuracy of Estimates of Reserves*

The court finds that oil reserves can be accurately calculated (R. 577), but the testimony of all experts showed that any estimates of reserves are subject to serious errors. Even estimates of saturated sand are subject to "inherent errors" (R. 191, 194)[36] and admittedly may be inaccurate as much as 10%. (R. 82, 169) Even after the acre feet of sand are estimated as accurately as possible, the estimates of oil reserves may be far from accurate, due to varying factors affecting recovery. (R. 354) Mr. Buck admitted that estimates of reserves may be inaccurate as much as 30%. (R. 317). This was emphatically shown by the fact that Mr. Buck had raised his estimate of the ultimate recovery from the East Texas field by *one billion barrels* since the trial of the first *Rowan & Nichols* case in 1939, or about 33 1/%. (R. 305-306)[37] He also increased the estimate of recoverable oil remaining in the East Texas field about *one billion barrels* over his estimate of the previous trial, or about 50%. (R. 308) It is submitted that estimates that are subject to such wide variations within a year's time are not a safe guide for the Railroad Commission

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[36]The Humble's estimate of the original number of acre feet in the field was reduced from its estimate of 5,208,000 at the August, 1939, hearing before the Railroad Commission to 4,9[illegible]4,000 at the trial, a difference of some 234,000 acre feet. (R. 192)

[37]Even at this trial, Mr. Buck's estimates of total and remaining reserves were about 350,000,000 barrels below the Humble's similar estimates: Buck, total reserves, 4,628,054,299 barrels. (R. 250), remaining reserves, 3,180,232,515 barrels (R. 251). Humble, total reserves, 5,000,000,000 barrels (R. 115), remaining reserves, 3,600,000,000 barrels (R. 115).

in formulating its proration orders, and certainly they do not form a sufficiently definite and certain basis for holding the Railroad Commission's action to be arbitrary.

(3) *Unfairness and Wastefulness of Proration Based on Current Reserves*

More important than the uncertainty of calculating reserves, however, is the unfairness of the distribution that would result if proration were on the basis of current reserves. Because of the recognized facts of the migration of oil from the western side of the field toward the center and the varying productive lives of the various portions of the field, it is obvious that a proration order based purely on current reserves or current acre feet of oil saturated sand would not achieve an equitable result, but would permit the leases in the center of the field, having the longest life, to produce many times the equivalent of the reserves originally beneath such leases.

It was admitted by I. L. Sorenson, expert for the Humble, that it was probably true that a method of proration based on current reserves would permit leases in the fairway and eastern portion of the field to recover more than their recoverable oil in place, while leases on the west side would lose, and that the position on the structure should be taken into consideration by the Railroad Commission. (R. 130) Mr. Buck, the expert for Rowan & Nichols Oil Company, admitted unequivocally that an allo-

cation based strictly on reserves would not be fair. (R. 295) Dr. Patten (R. 352, 353, 354) and Mr. Hudnall (R. 399) testified emphatically that a method of allocation based upon current reserves, which necessarily ignores the time element, would not produce a fair result, pointing out that because of the migration of oil, the percentage of the total current reserves of each lease was constantly changing, that the leases in the center of the field were gaining oil from the west and on a proration based on current reserves would produce not only currently many times what other leases are producing but would also produce much longer.

Proration entirely on the basis of current reserves would reduce the current allowables on wells on small tracts or on leases having thin sands so low as to make it impossible for such leases to be drilled and oil produced therefrom. As we have pointed out, even the Humble and the District Court shrank from eliminating a minimum allowable altogether.

No practical method of proration would permit leases in the field to recover *exactly* the amount of oil in place beneath such leases, and a certain amount of migration is inevitable, unless the center and eastern portions of the field are completely closed down, while the western portions of the field are allowed to produce their oil. (R. 355-356) However, the Raliroad Commission's plan of proration permits a recovery by each section of the field of substantially its reserves as near as this result can be practically achieved. (R. 430, 432, 433)

The District Court apparently wholly disregarded the fact that *current* recovery and *total ultimate* recovery are necessarily determined by very different factors. By requiring in effect that the Railroad Commission prorate production on the basis of current reserves, the court sponsored a plan which will inevitably lead to a total ultimate recovery by leases which will be entirely out of proportion to the recoverable oil originally in place beneath such leases. In this respect, the District Court's decision is in conflict with the decisions of the Supreme Court of Texas that each lease owner is entitled to recover the equivalent of the recoverable oil beneath his lease. *Brown* v. *Humble Oil & Refining Co.*, 126 Texas 296; *Gulf Land Co.* v. *Atlantic Refining Co.*, 134 Texas 59, as well as being in conflict with the decision of this court in *Railroad Commission of Texas* v. *Rowan & Nichols Oil Co.*, 60 S. Ct. 1021, 84 L. Ed. 983.

CONCLUSION

The decision of the District Court was rendered prior to the decision of this court in the case of *Railroad Commission of Texas* v. *Rowan & Nichols Oil Co.*, 60 S. Ct. 1021, 84 L. Ed. 983, and in view of the decisions of the District Court and the Circuit Court of Appeals in that case in effect requiring proration on the basis of current reserves. This court has since held that the Railroad Commission acted within the proper limits of its power in enforcing a proration plan which was over 98% on a per well basis,

and it necessarily follows that a plan which is only 75% on the per well basis and 25% on the basis of factors which are not assailed, is valid.

For the reasons stated, it is respectfully submitted that the judgment of the District Court for the Western District of Texas should be reversed.

Respectfully submitted,

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APPENDIX

Texas Statutes Relevant to this Appeal

(All Statutes Listed Below are Included in Texas Revised Civil Statutes, 1925, or Amendments as Indicated, and are Compiled in Volume 17 of Vernon's Annotated Civil Statutes of Texas)

Art. 6014. "Waste"

The production, storage or transportation of crude petroleum oil or of natural gas in such manner, in such amount, or under such conditions as to constitute waste is hereby declared to be unlawful and is prohibited. The term "waste" among other things shall specifically include:

(a) The operation of any oil well or wells with an inefficient gas-oil ratio, and the Commission is hereby given authority to fix and determine by order such ratio; provided that the utilization for manufacture of natural gasoline of gas produced from an oil well within the permitted gas-oil ratio shall not be included within the definition of waste.

(b) The drowning with water of any stratum or part thereof capable of producing oil or gas, or both oil and gas, in paying quanties.

(c) Underground waste or loss however caused and whether or not defined in other subdivisions hereof.

(d) Permitting any natural gas well to burn wastefully.

(e). The creation of unnecessary fire hazards.

(f) Physical waste or loss incident to, or resulting from, so drilling, equipping, locating, spacing or operating well or wells as to reduce or tend to reduce the total ultimate recovery of crude petroleum oil or natural gas from any pool.

(g) Waste or loss incident to, or resulting from, the unnecessary, inefficient, excessive or improper use of the reservoir energy, including the gas energy or water drive, in any well or pool; however, it is not the intent of this Act to require repressuring of an oil pool or that the separately owned properties in any pool be unitized under one management, control or ownership.

(h) Surface waste or surface loss, including the storage either permanent or temporary of crude petroleum oil, or the placing any product thereof, in open pits or earthen storage, and all other forms of surface waste or surface loss, including unnecessary or excessive surface losses, or destruction without beneficial use, either of crude petroleum oil or of natural gas.

(i) The escape into the open air, from a well producing both oil and gas, of natural gas in excess of the amount which is necessary in the efficient drilling or operation of the well.

(j) The production of crude petroleum oil in excess of transportation or market facilities or reasonable market demand. The Commission may determine when such excess production exists or is imminent and ascertain the reasonable market demand.

The Commission may consider any or all of the above definitions, whenever the facts, circumstances or conditions make them applicable, in making rules, regulations or orders to prevent waste of oil or gas.

Nothing in this Section shall be construed to authorize limitation of production of marginal wells, as such marginal wells are defined by Statute, below the amount fixed by Statute for such wells. (Acts 1919, p. 285; Acts 1929, 41st Leg., p. 694, ch. 313; Acts 1931, 42nd Leg., 1st C. S., p. 46, ch. 26, par. 1; Acts 1932, 42nd Leg., 4th C. S., p. 3, ch. 2, par. 1; Acts 1935, 44th Leg., p. 180, ch. 76, par. 2.)

Art. 6029. Rules and regulations

The Commission shall make and enforce rules, regulations or orders for the conservation of crude petroleum oil and natural gas and to prevent the waste thereof, including rules, regulations or orders for the following purposes:

(1) To prevent the waste, as hereinbefore defined, of crude petroleum oil and natural gas in

drilling and producing operations and in the storage, piping and distribution thereof.

(2) To require dry or abandoned wells to be plugged in such way as to confine crude petroleum oil, natural gas, and water in the strata in which they are found and to prevent them from escaping into other strata.

(3) For the drilling of wells and preserving a record thereof.

(4) To require wells to be drilled and operated in such manner as to prevent injury to adjoining property.

(5) To prevent crude petroleum oil and natural gas and water from escaping from the strata in which they are found into other strata.

(6) To establish rules and regulations for shooting wells and for separating crude petroleum oil from natural gas.

(7) To require records to be kept and reports made.

(8) It shall do all things necessary for the conservation of crude petroleum oil and natural gas and to prevent the waste thereof, and shall make and enforce such rules, regulations or orders as may be necessary to that end.

(9) To provide for the issuance of permits, tenders, and other evidences of permission when the issuance of such permits, tenders, or permission is necessary or incident to the enforcement of its rules, regulations, or orders for the prevention of waste, (Acts 1919, p. 285; Acts 1931, 42nd Leg., 1st C. S., p. 46, ch. 26, par. 15; Acts 1932, 42nd Leg., 4th C. S., p. 3, ch. 2, par. 7; Acts 1935, 44th Leg., p. 180, ch. 76, par. 4.)

Art. 6042. Powers not limited

Particular powers herein granted to the Commission shall not be construed to limit the general powers conferred by law, and until set aside or vacated by some order or decree of a court of competent jurisdiction, all orders of the Commission as to any matter within its jurisdiction shall be accepted as prima facie evidence of their validity.

Art. 6049b. Marginal wells defined; curtailing production

Sec. 1. The term "Marginal Well" as used herein means a pumping oil well capable, under normal unrestricted operating conditions, of producing such daily quanties of oil as herein set out as would be damaged, or result in a loss of production ultimately recoverable, or cause the premature abandonment of same, if its daily production were artificially curtailed. The following described wells shall be deemed "Marginal Wells" in this State:

(a) Any pumping oil well within this State having a daily capacity for production of ten (10) barrels or less, averaged over the preceding thirty (30) consecutive days, producing from a depth of two thousand (2,000) feet or less:

(b) Any pumping oil well within this State having a daily capacity for production of twenty (20) barrels or less, averaged over the preceding thirty (30) consecutive days producing from a horizon deeper than two thousand (2,000) feet and less in depth than four thousand (4,000) feet:

(c) Any pumping oil well within this State having a daily capacity for production of twenty-five (25) barrels or less, averaged over the preceding thirty (30) consecutive days, producing from a horizon deeper than four thousand (4,000) feet and less in depth than six thousand (6,000) feet:

(d) Any pumping oil well within this State having a daily capacity for production of thirty (30) barrels or less, averaged over the preeeding thirty (30) consecutive days, producing from a horizon deeper than six thousand (6,000) feet and less in depth than eight thousand (8,000) feet:

(e) Any pumping oil well within this State having a daily capacity for production of thirty-five (35) barrels or less, averaged over the preceding thirty (30) consecutive days, producing from a horizon deeper than eight thousand (8,000) feet. (As amended Acts 1933, 43rd Leg., p. 215, ch. 97.)

Sec. 2. To artificially curtail the production of any "Marginal Well" below the marginal limit as set out above prior to its ultimate plugging and abandonment is hereby declared to be waste, and no rule or order of the Railroad Commission of Texas, or other constituted legal authority, shall be entered requiring restriction of the production of any "Marginal Well" as herein defined. (Acts 1931, 42nd Leg., p. 92, ch. 58.)

Art. 6049c. Oil and gas conservation, powers and duties of Railroad Commission

Powers and duties of Railroad Commission

Sec. 5. The Commission shall have the power, and it shall be its duty, from time to time to inquire into the production, storage, transportation, refining, reclaiming, treating, marketing or processing of crude petroleum oil and natural gas, and the reasonable market demand therefor, in order to determine whether or not waste exsits or is imminent, or whether the oil and gas conservation laws of Texas or the rules, regulations, or orders of the Commission promulgated thereunder are being violated. . . . (As amended Acts 1932, 42nd Leg., 4th C. S., p. 3, ch. 2, par. 3; Acts 1934, 43rd Leg., 2nd C. S., p. 104, ch. 45, par. 1; Acts 1935, 44th Leg., p. 180, ch. 76, par. 5.)

Hearing by Commission as to waste

Sec. 7. Upon the initiative of the Commission,

or upon the verified complaint of any person interested in the subject matter, that waste of crude petroleum oil or natural gas is taking place in this State, or is reasonably imminent, the Commission may hold a hearing, at such time and place as it may fix, to determine whether or not waste is taking place, or is reasonably imminent and what, if any, rule, regulation, or order should be made or what, if any, other action should be taken to correct, prevent or lessen such waste. At said hearing all parties interested shall be entitled to be heard and introduce evidence and to require the attendance of witnesses, and the production of evidence may be required as provided by law. If upon the hearing the Commission shall find that waste is taking place, or is reasonably imminent, the Commission shall make such rule, regulation or order as in its judgment is reasonably required to correct, prevent or lessen such waste.

In the event any such rule, regulation or order which the Commission may adopt provides for the limitation or fixing of the production of crude petroleum oil, or of natural gas from wells producing gas only, in any pool or portion thereof, the Commission shall distribute, prorate, or otherwise apportion or allocate, the allowable production among the various producers on a reasonable basis.

From and after the promulgation of any rule, regulation or order of the Commission it shall be the duty of each person affected thereby to comply with the same. (As amended Acts 1932; 42nd Leg., 4th

C. S., p. 3, ch. 2, par. 5; Acts 1935, 44th Leg., p. 180, ch. 76, par. 6.)

Suits authorized by persons aggrieved by Commission's regulations or orders

Sec. 8. Any interested person affected by the conservation laws of this State relating to crude petroleum oil or natural gas, and the waste thereof, including this Act, or by any rule, regulation or order made or promulgated by the Commission thereunder, and who may be dissatisfied therewith, shall have the right to file a suit in a Court of competent jurisdiction in Travis County, Texas, and not elsewhere, against the Commission, or the members thereof, as defendants, to test the validity of said laws, rules, regulations or orders. Such suit shall be advanced for trial and be determined as expeditiously as possible and no postponement thereof or continuance shall be granted except for reasons deemed imperative by the Court. In all such trials, the burden of proof shall be upon the party complaining of such laws, rule, regulation or order; and such laws, rule, regulation or order so complained of shall be deemed prima facie valid. (As amended Acts 1932, 42nd Leg., 4th C. S., p. 3, ch. 2, par. 8; Acts 1935; 44th Leg., p. 180, ch. 76, par. 14.)